


7 a processor unit coupled to the memory for partitioning a screen of the display  
8 monitor into a plurality of display blocks having one or more layers of pixels,  
9 comparing a depth value of a polygon in a display block with a depth value of a  
10 particular layer in the block, and identifying visible pixels in the block making up the  
11 polygon based on the comparison.

1 12. (Amended) The system of claim 11, wherein[\_] the polygon in the display block  
2 is a triangle.

1 23. (Amended) The method of claim 17 further comprising the step of updating the  
2 minimum and maximum depth values of a layer in the block.

1 34. (New) In a computer graphics display system comprising a display monitor, a  
2 method of detecting hidden surfaces of a polygon in a display block, the polygon  
3 having depth values corresponding to a minimum depth value and a maximum depth  
4 value, the method comprising:  
5 partitioning a screen of the display monitor into a plurality of display blocks having  
6 one or more layers of pixels;  
7 storing in a z-range buffer minimum and maximum depth values for the layers in  
8 the block, the z-range buffer further storing a bitmask value, each bit in the bitmask  
9 value associating a pixel in the block to a layer in the block;  
10 comparing a depth value of the polygon with a depth value of a particular layer in  
11 the block stored in the z-range buffer; and  
12 identifying visible pixels in the block making up the polygon based on the  
13 comparison;  
14 the layers in the block comprise a first layer and a second layer, each pixel in the  
15 block being associated with either the first layer or the second layer, the first layer  
16 having depth values ranging from a first minimum depth value to a first maximum



- 17 depth value, and the second layer having depth values ranging from a second
- 18 minimum depth value to a second maximum depth value.

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